

IN THE CLAIMS:

1           1. (amended) An interferometric strain gage sensor which comprises:

2           a support;

3           a first layer of polymeric material having a first refractive index;

4           a second layer of polymeric material having a second refractive index which second  
5   refractive index is distinct from the first refractive index, the sensor having a gage factor of at  
6   least 100 and light energy communicates with the sensor, when a strain is applied to the  
7   sensor, the light energy is partly absorbed and the change in light energy correlates to the  
8   strain applied, the sensor being passive and one of said layers being filled with particulate.

1           2.       (original) The sensor of claim 1 which comprises:

2           a plurality of alternating first and second layers.

1           3.       (original) The sensor of claim 2 wherein the first layer has a refractive index of  
2   approximately 1.6 to 1.7 and is selected from the group consisting of polyimides and  
3   polycarbonates.

1           4.       (original) The sensor of claim 3 wherein the first layer is polyimide.

1           5.       (original) The sensor of claim 2 wherein the second layer has a refractive index  
2   of about 1.4 and is selected from the group consisting of polysiloxane, polyethylene,  
3   polypropylene, Teflon®, polyvinylidene fluoride and polyester.

1           6.       (original) The sensor of claim 5 wherein the second layer is polysiloxane.

1           7.       (original) The sensor of claims 4 or 6 wherein the thicknesses of the layers are  
2       between about 1 to 20 microns.

1           8.       (cancelled) The sensor of claim 1 which comprises:  
2                   means for contacting the sensor with light energy; and  
3                   means for measuring changes in the light energy.

1           9.       (cancelled) The sensor of claim 1 wherein the sensor is a passive sensor and  
2       one of said layers is filled with particulate.

1           10.      (amended) The sensor of claim 9 1 wherein there are multiple first and second  
2       layers in alternating relationship, the first layer selected from the group consisting of  
3       polyimides and polycarbonates, the second layer selected from the group consisting of  
4       polysiloxane, polyethylene, polypropylene, Teflon®, polyvinylidene fluoride and polyester.

1           11.      (original) The sensor of claim 10 wherein the first layer is polyimide and the  
2       second layer is polysiloxane filled with aluminum oxide particulate.

1           12.      (amended) The sensor of claim 9 1 which comprises:  
2                   means for contacting the sensor with light energy; and  
3                   means for measuring changes in the light energy.

1           13.   (amended) An interferometric strain gage sensor which comprises:  
2           a first layer of polymeric material having a first refractive index;  
3           a second layer of polymeric material having a second refractive index which second  
4           refractive index is distinct from the first refractive index, the sensor having a gage factor of at  
5           least 100 and light energy communicates with the sensor, when a strain is applied to the  
6           sensor, the light energy is partly absorbed and the change in light energy correlates to the  
7           strain applied, the sensor being an active strain gage and further comprising ~~The sensor of~~  
8           ~~claim 1 wherein the sensor is an active strain gage and comprises~~ a tube-like support for the  
9           first and second layers.

1           14.   The sensor of claim 13 wherein the first layer has a refractive index of  
2           approximately 1.6 to 1.7 and is selected from the group consisting of polyimides and  
3           polycarbonates, and wherein the second layer has a refractive index of about 1.4 and is  
4           selected from the group consisting of polysiloxane, polyethylene, polypropylene, Teflon®,  
5           polyvinylidene fluoride and polyester.

1           15.   The sensor of claim 14 ~~wherein the~~ which further comprises a third layer  
2           comprised of ~~outer most layer is coated with aluminum.~~

1           16.   The sensor of claim 15 which comprises:  
2                   means for contacting the sensor with light energy; and  
3                   means for measuring changes in the light energy.